The Nebraska

Foster Care Review Office

Out-of-Home Data Pilot Project Report

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EXECUTIVE SUMMARY

Due to the infancy of the project it is premature to make conclusions and recommendations at this point in time. There have been efforts made by the Department of Education and the Department of Health and Human Services to initiate preliminary analysis to demonstrate the advantages of a data warehouse, but at this time no results are available to report.

It is the intention of the Foster Care Review Office (FCRO) to deliver an addendum to this report as soon as data is received and analyzed by the FCRO office. The FCRO is expecting an addendum to be prepared by Mid-March.

Despite the project being in its infancy there are three risks moving forward if there are not active efforts to establish an external oversight data warehouse: a continued dependency on singular agencies; a more frequent resort to criticism between agencies; and perhaps most worrying, an ever-increasing role in anecdotal inklings driving public policy. Proactive use of these data analysis via a data warehouse can mitigate these risks.

Past and current joint data efforts undertaken are unequivocally great, but myopic in nature. Questions are only asked once anecdotal evidence suggests a subject matter, instead of using data to predict events based on changes made to policy. Ultimately, though, the state must confront the deep question: what is the purpose of spending on the children? If it is to provide only a minimum understanding of the population, there are plenty of individualized agencies to provide scope. If it is to provide an expansive alternative to measuring and improving the lives of our State's children, a solution must have higher contributions.

Mastering the complexity of a data warehouse as well as its design, production and management will require certain skill and collaboration. The days of singular data system operating outside of each other is coming to an end – as effective research tools can deliver data of an unprecedented depth capable of answering the most important questions regarding a child's out-of-home placement.

Long term research needs will be attainable with a data warehouse, in that one would be better able to understand longitudinal service consumption by children and juveniles; effectiveness of programs; key indicators for success; streamlined process for ad hoc research needs; predictive usage; and debunk untruths.

INTRODUCTION

The FCRO is responsible for reporting to the Legislature, the Governor, and the Supreme Court on the issue of an independent, external oversight data warehouse capable of accounting for children and juveniles in out-of-home placements. The FCRO is charged with administrating the Out-of-Home Data Pilot project, under the supervision of the Out-of-Home Data Pilot Project Advisory Group. The purpose of this report is to demonstrate how an existing state agency data system or systems currently used to account for children and juveniles in out-of-home placement could serve as a foundation for an independent, external oversight data warehouse.

The Out-of-Home Data Pilot Project Advisory Group has met twice since passing of LB 265 in 2015. The Out-of-Home Data Pilot Project Advisory Group consists of twelve member agencies, nine of whom would ideally be partners in the data collection process. Below is an outline of partners involved in the project.

Agencies involved:
- Department of Education (1)
- Department of Health and Human Services
  - Division of Behavioral Health (2)
  - Division of Children and Family Services (3)
  - Division of Development Disabilities (4)
  - Division of Medicaid and Long-Term Care (5)
- Foster Care Review Office (6)
- Crime Commission (7)
- Office of Probation (8)
- State Court Administrator (9)
- Inspector General of Nebraska Child Welfare (10)
- Juvenile Justice Institute (11)
- Office of Chief Information Officer (12)

The purpose of the Out-of-Home Data Pilot Advisory Group is to oversee the pilot and consider whether an independent, external oversight data warehouse could be created by building on an existing state agency data system, or systems, currently used to account for children and juveniles in out-of-home placement. The Advisory Group is to consider the features and capabilities of existing agency data systems that gather information on children and juveniles in out-of-home placement. The Advisory Group will examine where an independent, external oversight data warehouse might be located within state government, possible costs associated with establishment and operating a data warehouse, challenges of data collection, barriers to data sharing, protection of confidential information, and restrictions on access to confidential information.

Furthermore, the purpose of the data warehouse is to allow analysis that can account for children and juveniles in out-of-home placement regardless of how they entered, whether that is through the Department of Health and Human Services or via court involvement.

Specifically, the data warehouse will allow researchers to determine if placement outcomes meet policy goals; if children and juveniles in out-of-home placement are better off as a result of said out-of-home placement; identification of the key indicators for successful outcomes; and project future needs for children and juveniles in out-of-home placement.

The need for out-of-home placement is predicated on the notions of safety and well-being. The usage and perception of out-of-home placement are often at the forefront of our society. Great attention is drawn to possible issues in the area of out-of-home placement. These issues can be very difficult to identify, as well as verify, and are critical for the agencies involved, as well as lawmakers.

The Legislature selected the FCRO as the site for this Out-of-Home Data Pilot project because the FCRO is the independent advocate for all of Nebraska's children and juveniles placed out of the home. It is the goal of this report to demonstrate how an existing state agency data system or systems could serve as the foundation for an independent, external oversight data warehouse.

DESCRIPTION OF A DATA WAREHOUSE

A data warehouse is a collection of two or more distinct data sources integrated together, with the flexibility to introduce additional distinct data without having to modify the warehouse itself.

Transactional Data Integration and Applied Data Integration

In many ways transactional data integration and applied application integration efforts overlap when discussions begin about establishing a data warehouse. For the purposes of this report, **transactional data integration** is considered the transmission of data between datasets which generates a specific day-to-day human interface for a user to access singular data points for frontline workers. **Applied data Integration** is considered the transmission of data between datasets that establishes and maintains an operational data warehouse for research purposes. Perhaps the audience should consider transaction data integration as 'moving the piano' and applied data integration as 'playing the piano' – two different experiences in the data sharing technology continuum.

The State of Nebraska maintains one of the best **transactional data integration** efforts in the United States. The Nebraska Criminal Justice Information Systems (NCJIS) established by the Nebraska Crime Commission in 1995 has been a leader in data sharing and use of information technology among criminal justice agencies for operational use. It would make sense, to basically leverage the efforts made by the Crime Commission to facilitate a data warehouse, although NCJIS is **not** developed utilizing concepts of **applied data integration**.

This most recent initiative is dedicated to understanding the efforts needed to develop an **applied data integration** apparatus, so that key stakeholders in the child welfare system can measure and improve the most important factors of a child's experience. There has never been more of a demand for applied data integration, especially since partners within each agency have established internal databases, and have shown the ability to participate in transactional data integration.

Reasonable Reassurance and Collective Responsibility

To successfully build a data warehouse, partners must have reasonable reassurance that results determined will not negatively impact the agency involved – this has been the burden of past opportunities. The build-up of agency data siloes began as individual agencies started asking questions about measurement or improvement, or both.

Utilizing a true data warehouse mentality, no one agency has the authority to shelf results or shape analysis to better influence stakeholders. The onus of reasonable reassurance lies with an independent external oversight data system established with a mission to ensure credibility of data, firm research methods, and an unbiased results publication method founded on the key goal of improving children and their families' ability to meet policy goals.

Ultimately results presented would be less damaging to specific agencies as ownership of an individual's continuum of care would fall under multiple agencies – a form of collective responsibility. Additionally, oversight must be in place to ensure data partners share clean data with the ambition towards collective responsibility.

Forbidding Policies take a Technological toll

Coordination of the legality of communicating sensitive data should be diffused by establishing statutory compliance for participation and management of the data. This is where reviewing previous memorandums of understanding will help establish already agreed upon intent -- although the success of such a project cannot rely on cross-system memorandums in an unpredictable political climate. Clearly mapping sensitive data points, along with key indicators to address legal comfortability, should be one of the oversight data warehouse administrator's first priorities – but should not be a roadblock.

Statutory language should distinctly note that such data warehouse information is exempt from any public records request, or secondary analysis from a participating agency. Although, the creation of a Data Steering Committee will evaluate requests from academic entities that request de-identified data for research purposes. Sometimes demand for agency participation enters the discussion, and firm statutory language is essential for a successful implementation and maintenance of a data warehouse.

Reporting Results

Prior to publication of any results the data warehouse administrators office will establish a reporting embargo to reduce inaccuracy in reporting and allow data participants the opportunity to ready themselves prior to publication of results. It will be the duty of the data warehouse administrator to manage incoming inquiries from data warehouse participants and outside contact.

Record Linkage and Data Warehouse Management

Effective record linkage is the important cog that makes an applied data integration project work. Merging, matching, and deduplication through data cleaning and standardization are key factors to examine when weighing options. Due to the complexity of data matching finding records from two different sources that match each other is crucial. By implementing a data transformation system, the data warehouse will perform deterministic matching, followed by a probabilistic matching algorithm, and ultimately a clerical review and evaluation of records that fall outside of the realm of sound linkage techniques.

Instead of simply matching Database A to Database B, the data transformation system will establish a person table, in which there is only one unique observation for each person. Once a person table is established subsequent databases can be matched to the person table. Secondary encounter tables will be established for each database for their respective agency. This would be done chronologically through the continuum, meaning you shouldn't have an individual in a probation database that is not in a JUSTICE database. Most systems utilize a

unique identification number for their individuals, which will be vetted for consistency. Additional information about each encounter will be stored in program tables, service tables etc., so that the analysis can be conducted to identify successful outcomes, and even an individual's consumption of services over time.

The ability to understand the properties of data warehousing are not key for this audience, but rather it will allow us to do better. There are a large amount of variables when multiple agencies partner, but what emerges is a complete stronger data system capable of answering complex questions that trouble our current system.

Time and Costs

There is no reward for speed in the implementation of an external data warehouse; the reward would be the inclusiveness. Nor should there be a willingness to cut investment and expect valid reporting. If there is a need for speed or fast completion, anticipate disruption. An aggressive timeline from creation to reporting would be at least three years from the date of commitment to such a project. At a minimum a successful agency director would need at least five staff person each dedicated to their own craft – each able to assist in multiple facets. (Director of Research, Database Administrator, Policy Analyst, Research Analyst and Administrative Aide(s))

Front line data partners within each agency understand that leadership has little appetite for delay, and sometimes the obvious question goes unanswered to appease initial data needs. In other words someone has to own the slow-growing business of starting a data warehouse, which is why a stand-alone entity instead of an ever moving data partnership within an agency makes sense. It will not be easy to bring all individual agencies up to speed, and with that being said, an extra allocation of funds is necessary to be administrated by the data warehouse administrator to help facilitate the advance of individualized agency data systems to meet system requirements necessary to share data distinctly for this project.

Additional opportunity for data conformity should be undertaken, in that new data systems that are being developed must be developed with insight into immediate data sharing with the data warehouse upon activation. A representative from the data warehouse administration office must be included in this process, so there are no data voids.

EXAMINATION OF EFFORTS

Much was discussed during the two Out-of-Home Data Pilot Project Advisory Group meetings but a few key tasks must be implemented to continue the advance efforts forward.

Additional Input Sources

It is clear; many key data stakeholders participate in overlapping data system meetings on numerous revolving subject matters. The goal of the Out-of-Home Pilot Project Advisory Group, which is composed of key directors, was to create the framework needed to meet the statutory requirements of LB265. Based upon the framework created, the Out-of-Home Data Pilot Project Advisory Group has made the recommendation that two separate initial sub-committees be formed. First, would be a Data Steering Sub-Committee and second an Information Sharing Sub-Committee.

The responsibilities of the Data Steering Sub-Committee are to manage and discuss data related items with consideration given to each of the agencies current data system both from a technological standpoint and also from a systemic standpoint. The Data Steering Sub-Committee will identify the key indicators needed to show whether or not children better off when they exit the child welfare/juvenile justice system than when they entered. Once these key indicators are identified, the Data Steering Sub-Committee will determine which current data systems collects the needed indicators and how to integrate all of these indicators into an effective and usable database. The needs of each agency involved will be discussed in order to ensure the sustainability of the integration of data systems. Each of the agencies would have a data representative available that would speak to the questions that are being asked of them.

The responsibilities of the Information Sharing Sub-Committee is to manage and discuss the legal obstacles of sharing data between systems; produce a matrix outlying specifically which key indicators (provided by the Data Steering Sub-Committee) can and cannot be legally shared; and create possible solutions if impediments to sharing data is discovered. This includes an examination of current Nebraska statutes and proposal of any needed statutory changes for the implementation of the pilot, and of the data warehouse itself.

EXAMPLES OF WORK

The FCRO is currently working on gathering data to demonstrate an example of the capabilities of an independent, external oversight data warehouse. Specifically, the FCRO is working with the Department of Education and the Department of Health and Human Services to examine child well-being indicators surrounding their educational needs. This data project will consider school attendance; tests scores and school mobility rates for children placed in out-of-home care. It is the goal of the FCRO to publish an addendum to this report in Mid-March.

The FCRO has met with representatives from the Department of Education and the Department of Health and Human Services to leverage the existing State Ward Statistical Snapshot Report and database that compared education statistics between State Wards to Non-Wards for three consecutive school years. (SY10/11, SY11/12, and SY12/13). The FCRO applauds the NDE and NDHHS efforts and sees two potential research projects that could be conducted utilizing this current database.

First, the State Ward Statistical Snapshot compares all of the State Wards to all of the non-wards in the State. This analysis can be refined using propensity match scoring so that a more accurate comparison can be made. Currently, the State Ward Statistical Snapshot compares 300,000 students (non-wards) to 6,000 students (wards). For example, to refine the analysis a researcher would identify key characteristics for the State Ward out-of-home population then utilize a Propensity Score Matching algorithm to look at the 6,000 State wards and find the best case criteria match with one of the 300,000 Non-Wards. This matching process would ensure that a fair comparison is made between both groups.

	State Wards	**Comparison Group**
Ex. 1	Student 123456789	Student 234567890
	State Ward	**Non-Ward**
	Grade 7	Grade 7
	Male	Male
	Lincoln Public School	Lincoln Public School
	IEP (No)	IEP (No)
Ex. 2	Student 345678912	Student 456789123
	State Ward	**Non-Ward**
	Grade 5	Grade 5
	Female	Female
	York Public Schools	York Public School
	IEP (Yes)	IEP (Yes)

Second, if an independent, external oversight data warehouse is to be established, one of the purposes stated in LB265 is to allow for data analysis. The FCRO is currently attempting to leverage data collected by the FCRO, and match the data to the State Ward Statistical Snapshot Analysis. Once this matching occurs. The FCRO would conduct additional analysis to

examine measurements of well-being that should remain stable or even improve. Topics of analysis would also include the significance of age, gender, placement changes, type/count of placement, geography, and length of out-of-home placement.

The FCRO has identified 188 children that have been in-home during the first school year (SY10/11), and placed out-of-the home for more than a year during the second and third school years (SY11/12, SY12/13). The FCRO would like to examine attendance, mobility and relevant NeSA (Nebraska State Accountability) scores for these 188 children as they transitioned out-of-home for each period of time. The Department of Education and the Department of Health and Human Services are currently working on matching SY13/14 data. Once a fourth year of data is complete, it is the goal to examine these variables once the child has been placed back in-home.

Below is an example bar chart using example data outlining the average days of absenteeism for a specific child-cohort. This child cohort is comprised of only children that are out of home for more than a year during SY12/13 and SY13/14. The blue bar represents the absenteeism for the cohort when in-home, and the orange bars showing the two years in out-of-home care. This is a relatively simple example of the data analysis/visualizations that would be conducted if there were a data warehouse.